

CLAIMS

We claim:

1     1.     A vibration damper with variable damping force, comprising:  
2     a working cylinder filled with damping medium;  
3     a piston fastened to a piston rod arranged in an axially movable manner in said  
4     working cylinder and dividing the working cylinder into two working spaces;  
5     first and second non-return valves arranged in said piston for respectively  
6     providing a damping force for the rebound and compression directions of the vibration damper;  
7     and  
8     a damping valve arranged in one of said piston and said piston rod having a  
9     variable damping action and arranged in series with each of said first and second non-return  
10     valves, thereby acting in both said rebound and compression directions of the vibration damper.

2.     The vibration damper of claim 1, wherein said damping valve comprises  
an externally activated actuator for adjusting said variable damping action.

3.     The vibration damper of claim 1, wherein at least one of said first and  
second non-return valves comprises an element from the group consisting of a spring lock and a  
spring-loaded valve disk.

4.     The vibration damper of claim 1, wherein a characteristic of said damping  
valve is precontrollable to a precontrolled setting in at least one of the rebound direction and the  
compression direction.

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1 5. The vibration damper of claim 4, wherein said actuator for said damping  
2 valve comprises an electromagnet.

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1 6. The vibration damper of claim 1, wherein said first and second non-return  
2 valves are accommodated together with their associated valve seats in said piston.

1 7. The vibration damper of claim 1, wherein said first and second non-return  
2 valves are preassembled with their associated valve seats as a modular unit and are fixedly  
3 connected in said piston.

1 8. The vibration damper of claim 1, wherein said first and second non-return  
2 valves and said damping valve are arranged in said piston.

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1 9. The vibration damper of claim 1, wherein said first and second non-return  
2 valves communicate with one of said upper and lower working spaces and said damping valve  
3 actuates via at least one flow connection to the other of said upper and lower working spaces.

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1 10. The vibration damper of claim 9, wherein said damping valve comprises a  
2 valve body that is precontrollable to a precontrolled setting in one of said rebound and  
3 compression directions and directly controllable via an actuator in the other of said rebound and  
4 compression directions.